Kolloquium über Mathematische Statistik und Stochastische Prozesse

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Superhedging Approach to Stochastic Analysis

Abstract:

Using Vovk's game-theoretic approach to stochastic analysis and mathematical finance, one can determine sample path properties of "typical price paths" belonging to the space of continuous functions. Interestingly, all results for "typical price paths" hold quasi surely under all martingale measures on the Wiener space.
We prove that "typical price paths" possess quadratic variation, local times and associated Itô rough paths. This allows us to develop a pathwise Itô integration as well as pathwise stochastic calculus for local times.
This talk is based on joint works with R. M. Łochowski and N. Perkowski.

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